

A

WE CLAIM AS OUR INVENTION:

13

Patent Claims

1. Method for producing a surface mounting optoelectronic component with a base body (1), an optoelectronic transmitter and/or receiver (11) that is arranged in a recess (4) of the base body (1), and an optical device (16,16',45) that covers the recess (4),
5 with the steps:
 - a) preparing the base body (1) with the optoelectronic transmitter and/or receiver arranged in the recess,
 - b) filling the recess (4) of the base body (1) with a transparent hardenable casting compound (14),
 - 10 c) placing the optical device (16,16') on,
characterized in that
the optical device (16,16') is placed onto the as yet uncured casting compound (14) in step (c), and the casting compound (14) is then cured.
- 15 2. Method as claimed in claim 1, characterized by the steps:
 - producing the base body (1) by coating a conductor strip (2) with a thermoplast housing (3) while simultaneously forming the recess (4),
 - mounting the optoelectronic transmitter and/or receiver (11) on a portion (9) of the conductor strip (2) situated inside the recess (4),
 - 20 - filling the recess (4) of the base body (1) with a transparent curable casting compound (1) whose thermal characteristics are adapted to the thermoplast housing material.
- 25 3. Method as claimed in claim 1 or 2,
characterized in that
in step b), the fill level of the casting compound (14) is selected such that, in the subsequent placement of the optical device (16,16') in step d), essentially no casting compound (14) runs over the edge of the recess (4).

00000000000000000000000000000000

4. Method as claimed in claim 3,

characterized in that

the recess (4) is filled with casting compound (14) essentially to the edge in step b),
and after the recess (4) is filled a fillet (15) develops owing to the surface tension of the
5 casting compound (14), and the optical device (16,16') is so shaped in the region (31)
contacting the casting compound (14) that no casting compound (14) runs over the
edge of the recess (4) when the optical device (16,16') is subsequently placed on.

5. Method as claimed in one of the preceding claims,

10 characterized in that

in step c) the optical device (16,16') is placed from above onto the base body (1) or
onto the seating elements (32) attached thereto essentially without pressure.

6. Method as claimed in one of the preceding claims,

15 characterized in that

the curing process ensues under the influence of heat.

7. Method as claimed in one of the preceding claims,

characterized in that

20 prior to step b) the following steps are carried out:

- production of the optical device (16,16') by mean of casting, pressing or injection processes,
- readying and transporting the optical devices (16,16') as bulk material,
- automatic picking of a respective device (16,16') from the bulk material, and
- 25 - automatic positioning of an optical device (16,16') over a base body (1).

8. Method for producing a surface mounting optoelectronic component with a base body (1), an optoelectronic transmitter and/or receiver (11) that is arranged in a recess

(4) of the base body (1), and an optical device (45) that covers the recess (4), with the steps:

- A) preparing the base body (1) with the optoelectronic transmitter and/or receiver arranged in the recess,
- 5 B) filling the recess (4) of the base body (1) with a first transparent hardenable casting compound (14),
- C) readying a casting mold half (39) and filling the half (39) with a second transparent hardenable casting compound,
- D) at least partially curing (35) the first casting compound (14) in the recess (4) of the
- 10 base body (1) and/or the second casting compound in the mold half (39),
- E) joining the base body (1) and the mold half (39) properly positioned, in such a way that the additional casting compound that is present in the mold half (39) comes into contact with a surface of the casting compound (14) in the recess (4) of the base body (1),
- 15 F) curing the second and/or first casting compound, and
- G) removing the mold half (39) from the base body (1) with cast-on optical device (45).

9. Method as claimed in claim 8,

20 characterized in that

prior to step E), the surface of the casting compound (14) is wetted.

10. Method as claimed in claim 9,

characterized in that

25 the step of wetting the surface of the casting compound (14) subsumes the steps:

- turning (36) the base body (1) about a horizontal axis such that the opening of the recess (4) is directed down, and
- immersing (37) the base body (1) in liquid casting compound at least superficially.

11. Method as claimed in one of the claims 8 to 10,
characterized in that
the at least partial curing of the casting compound (14) is carried out by heat treatment (35).

5

12. Method as claimed in one of the claims 8 to 11,
characterized in that
the curing of the additional casting compound is carried out by heat treatment (43).

10 13. Method as claimed in one of the claims 8 to 12,
characterized in that
– several base bodies (1) are led on a first strip,
– that several mold halves (39) are led on a second strip (38), and
– that the first (33) and second (38) strips are led in parallel at least during the casting
15 on process in step c).

14. Method as claimed in one of the claims 8 to 13,
characterized in that
– several base bodies (1) are led on a first strip
20 – that several mold halves (39) are combined in a group, and
– that the group of casting molds is connected, in such a way that they can be detached,
to a corresponding number of base bodies (1), at least during the casting on process in
step E).

25 15. Method as claimed in one of the claims 8 to 14,
characterized in that
the base body (1) and the casting mold half (39) are joined at a temperature of
approximately 80°C.

16. Method as claimed in one of the claims 8 to 15,

characterized in that

the additional casting compound is cured (43) at a temperature of approximately 150°C.

5

17. Method as claimed in one of the claims 8 to 16,

characterized in that

the mold half (39) is removed from the base body (1) at a temperature of approximately 80°C.

10

18. Surface mounting optoelectronic component with

- a base body (1), which is formed from a thermoplast injection housing and a coated conductor strip (2),
- an optoelectronic transmitter and/or receiver (1) which is/are arranged in a recess (4) of the base body (1) and which is/are mounted on a portion (9) of the conductor strip (2) situated inside the recess (4),
- a transparent hardenable casting compound (14) that is provided in the recess, whose thermal characteristics are adapted to those of the thermoplast housing material, and
- an optical device (16,16') that covers the recess,

15

characterized in that

the optical device (16,16') and the casting compound (14) are cast on one another, so that the optical device enjoys surface-wide contact with the casting compound (14) in the region of said device's seating surface for placement onto the casting compound.

20

25 19. Surface mounting optoelectronic component as claimed in claim 18,

characterized in that

the recess (4) is provided with a surrounding ring channel (6).

20. Surface mounting optoelectronic component as claimed in one of the claims 18 or 19,

characterized in that

the base body (1) is provided with seating elements (32) for the optical device (16,16'),
5 these being arranged at the margin side relative to the recess (4).

add A4

and B11